

Residential construction: ready for final inspection

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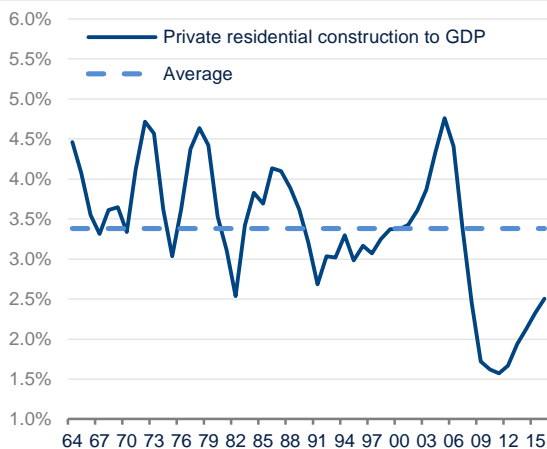
- A rebound in household formation could lead to an increase in housing demand
- The supply of new units is likely to increase to 1.4 million per year from 1.2 million currently
- Building restrictions in attractive metropolitan areas will support construction activity in other areas

In 2016, residential construction spending in the U.S. amounted to \$473 billion, equivalent to 2.5% of GDP. Although this ratio has rebounded 1pp from the aftermath of the Great Recession, it is still lower than 3.2%, which may be considered a more stable level (Figure 1) when the economy is operating near full employment.

More than nine years of below trend construction has helped work through a large share of the excess units built up during the pre-crisis period, but also created housing shortages in some locations that have been particularly economically attractive – mostly large urban centers in the East and West Coasts. New single-family construction, which accounts for over half of residential construction spending, has been particularly affected (Figure 2). The suboptimal level of new construction is contributing to lower listings in the existing homes market (see earlier [brief](#)), which is leading to strong price appreciation.

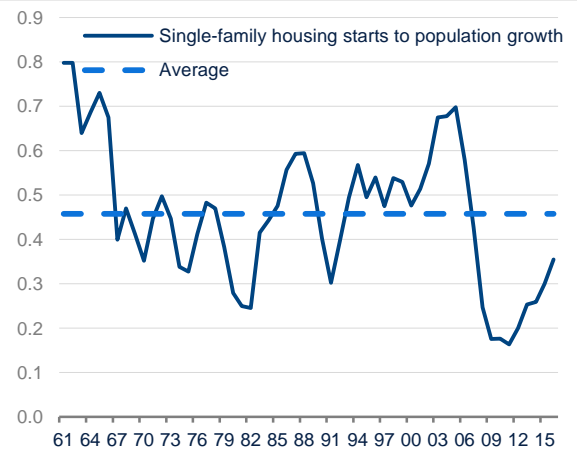
This brief takes stock of the current state of demand and supply of new housing. It also takes a deeper look into the reasons behind the subpar construction activity in light of strong price growth over the last several years. Finally, we take a look at supply constraints at the MSA level and provide our outlook.

Figure 1. Private residential construction as a share of GDP (ratio, %)



Source: BBVA Research and Census Bureau

Figure 2. Housing starts of 1-unit structures to annual 20+ population increase (ratio, units per person)



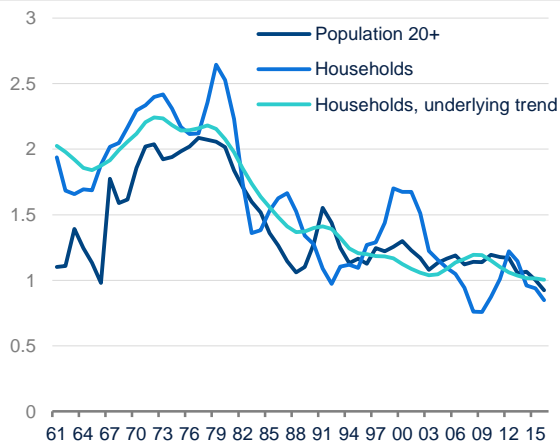
Source: BBVA Research and Census Bureau

Housing demand: suppressed household formation by young adults

Housing demand is driven by three main forces: 1) household formation; 2) replacement of existing units; 3) second homes¹. Household formation is by far the largest factor. It is primarily driven by the growth in adult population, but also reflects changes in the population composition, preferences, and the economic environment. Until the early 1980s, household formation was outpacing adult population growth due to secular forces such as the trend towards nuclear families. Since then, household formation has been more aligned with adult population change (Figure 3), fluctuating around its trend with the business cycle.

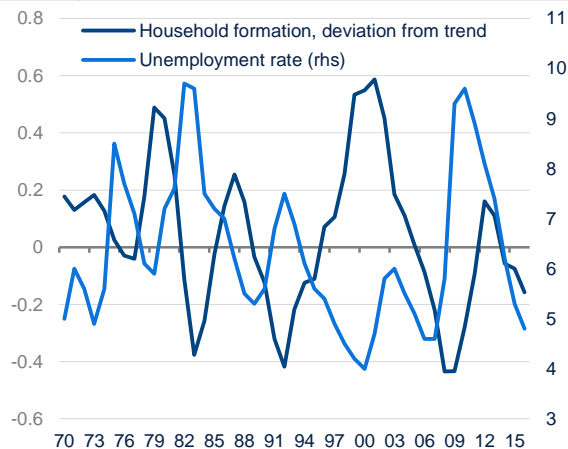
However, during the current expansion, household formation has not picked up as strongly as it might have been expected (Figure 4). According to our analysis, this is mainly due to anemic household formation for people between the age of 25 and 34 (Figure 5). This observation is in line with the findings that young adults are more likely to live with their parents compared to ten years ago (Figure 6). While living independently has declined for all groups of young adults, it is the less educated, especially those with only high school, that have experienced the greatest increase in the likelihood to live in their parental home (Figure 7)².

Figure 3. Population 20+, households and underlying household trend³ (% YoY, % YoY MA and %YoY)



Source: BBVA Research and Census Bureau

Figure 4. Household formation deviation from trend and unemployment (pp and %)



Source: BBVA Research and Census Bureau

Household formation in the 25-34 age group normally depends on earnings growth. The change in household formation lags real median earnings by about three years (Figure 8). However, based on our models, weak growth in real median earnings cannot fully account for the current slowdown in household formation for this age group. Rather, it is the

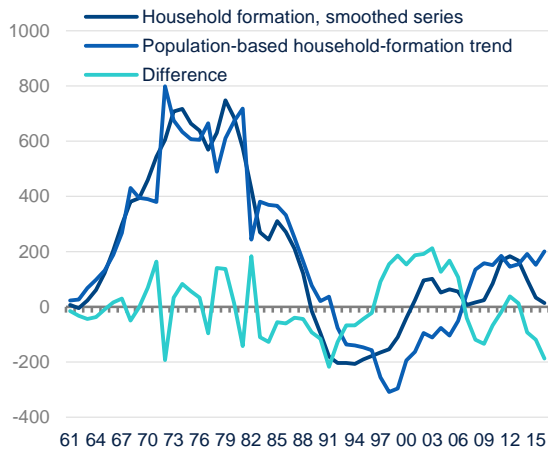
¹ Belsky, E., Drew, R., McCue, D. (2007) Projecting the Underlying Demand for New Housing Units: Inferences from the Past, Assumptions about the Future.

² See Pew Research Center. (2014). The Rising Cost of Not Going to College. <https://goo.gl/9xsfZT>

³ The underlying trend is estimated by modeling the trends of household formation for eight age groups of households over the 1960-2016 period primarily based on population growth in each respective age group

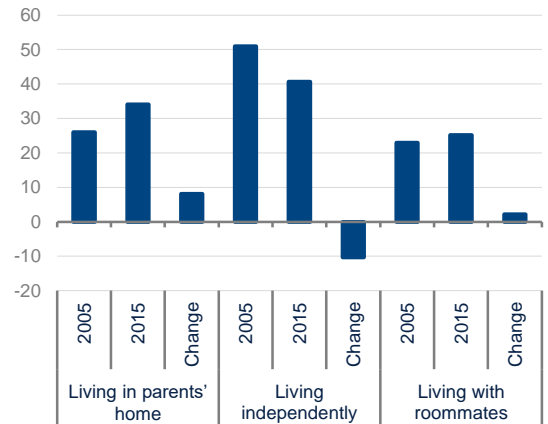
combination of modest increases in real median earnings with high increases in real rents, tighter access to mortgage credit and a lower leverage ratio⁴ (Figure 9) that explain the unusual pace of household formation of Millennials.

Figure 5. Household formation for households with householder aged 25-34 (thousands)



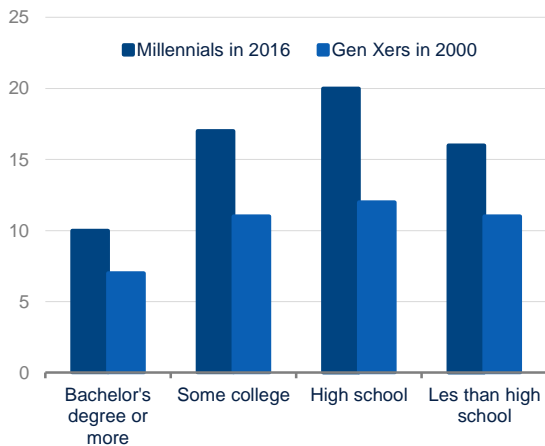
Source: BBVA Research and Census Bureau

Figure 6. Change in living arrangements for young adults aged 18 to 34 between 2005 and 2015 (%)



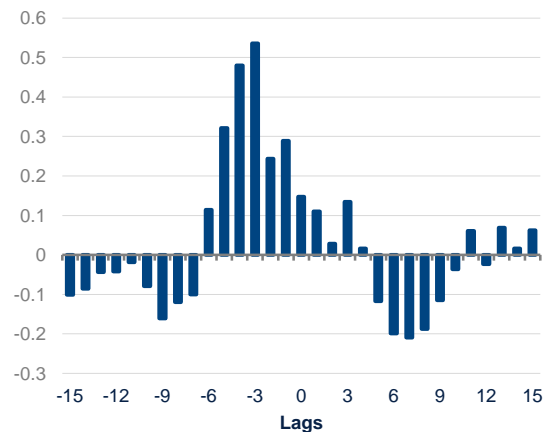
Source: BBVA Research and Vespa, J.⁵

Figure 7. Young adults living in parent's home by educational attainment (%)



Source: BBVA Research and Pew Research Center⁶

Figure 8. Cross-correlogram of deviation of household formation from trend and growth in real median income, 25-34-old (correlation values)



Source: BBVA Research

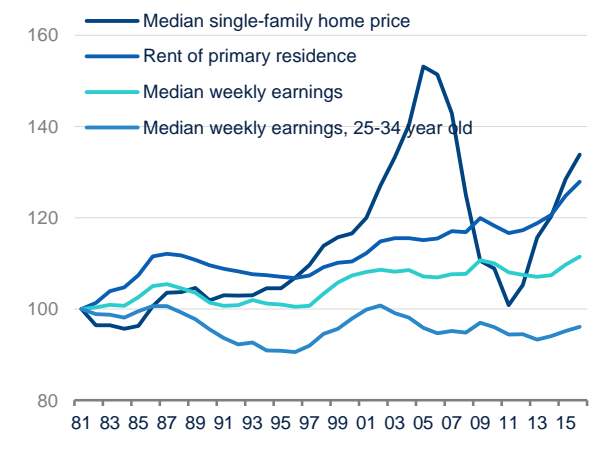
⁴ Real mortgage debt per capita is used as a proxy for credit availability and leverage

⁵ Vespa, J. (2017). The Changing Economics and Demographics of Young Adulthood: 1975–2016. Census Bureau. <https://goo.gl/2ezpZZ>

⁶ Fry, R. (2017). It's becoming more common for young adults to live at home – and for longer stretches. Pew Research Center. <https://goo.gl/pAfoWb>

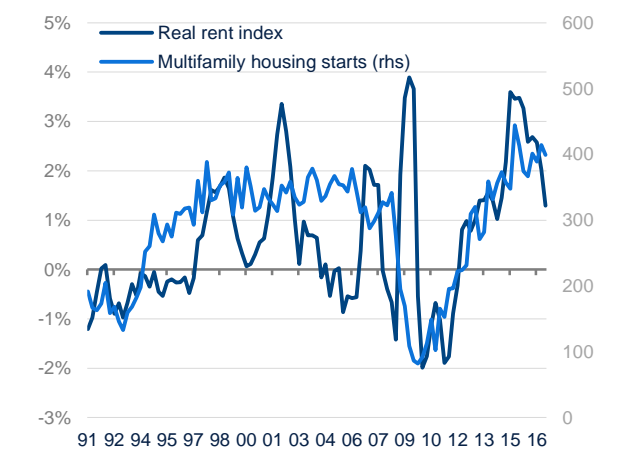
This information implies that there is pent-up household formation that could be released with a faster increase in median incomes, slowdown in the growth rate of real rents, and/or improved supply and availability of mortgage credit. Based on recent trends of these three variables, household formation is likely to increase in the coming period, as long as the economy continues expanding. First, the growth in earnings for younger workers is likely to improve due to a tighter labor market. Second, the growth of real rents has slowed significantly since early 2015 due to the influx of new rental units on the market, following the sharp increase in construction of multifamily units after the crisis. While multifamily housing starts are not increasing as they used to, they are still solid compared to historical values and should continue to exert downward pressure on real rents (Figure 10). Moreover, mortgage availability, although significantly below pre-crisis levels, has been gradually increasing since 2011. Last but not least, mortgage originations have been increasing in relative terms for less creditworthy clients (many of whom are younger), as implied by the consistent composition of mortgage originations by credit score amid a rising average creditworthiness of the overall population (Figure 11).

Figure 9. Inflation adjusted home prices, rents and earnings (indices, 1981=100)



Source: BBVA Research, NAR and BLS

Figure 10. Real rents and multifamily housing starts (% YoY and thousands)



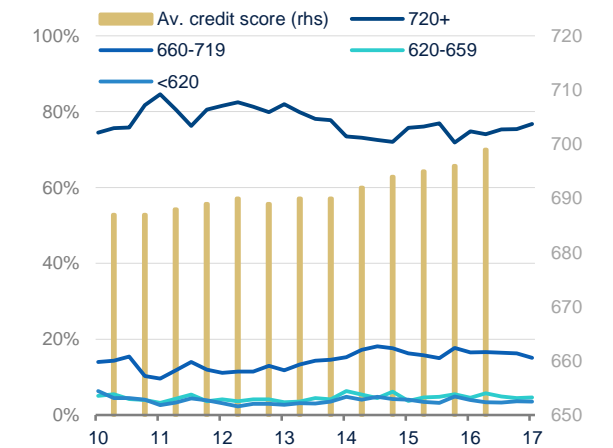
Source: BBVA Research, Census Bureau and BLS

Housing stock: effects from vacant units held off market

One major effect from the subprime mortgage meltdown was the unprecedented increase of the share of vacant units in the housing stock (Figure 12), especially units “held off market for other reasons” i.e. for reasons other than occasional use. In 2015-2016, the share of these vacant units reached almost 3% of total national housing stock, the highest level since at least 1965 (Figure 13). In a hypothetical scenario where this ratio returns to its historical trend, the market would experience an increase in occupied units of over 400 thousand, the equivalent of one-third of the current annual housing construction volume. The release of such pent-up supply would have a significant and positive effect in the housing market. However, the distribution of these units is highly uneven and more likely to be in less attractive markets where demand is not high due to slow or negative population growth. The pockets of vacant units in desirable markets where the release of any pent-up supply would have a high effect in terms of shortage alleviation is likely small. For example, according to ATTOM Data Solutions, the two locations with the highest vacancy rate in 3Q17 were Flint, MI at 7.1% and

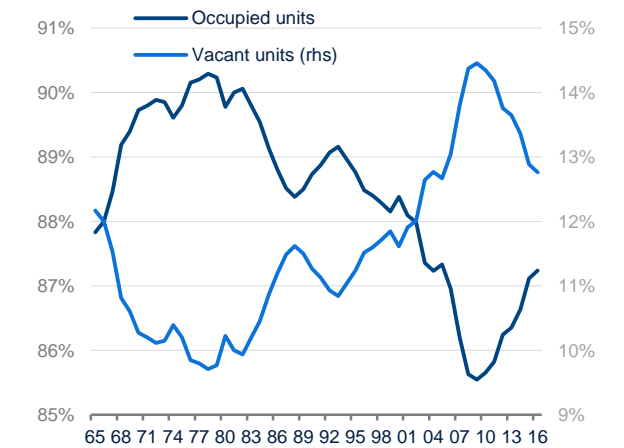
Youngstown, OH, at 4.6%. Meanwhile, the two locations with the lowest vacancy rate were San Jose, CA and Fort Collins, CO⁷ at 0.2%, showing the divergent fortunes of the former industrial towns in the Midwest and the new knowledge economy hotbeds. In addition, some of the vacant units held of market for other than occasional use could be in very poor conditions and bringing them back to market could be unprofitable.

Figure 11. Composition of mortgage originations by credit score and average credit scores of entire population (% and score)



Source: BBVA Research, FRBNY and Experian

Figure 12. Share of occupied and vacant units in housing stock (%)



Source: BBVA Research and Census Bureau

Housing supply: solid potential for housing starts

While the share of all vacant units remains elevated, some of the excess homes built during the 2001-2007 period have been absorbed since then, especially in 2011-2014, when household formation was significantly stronger than housing starts (Figure 14). Going forward, in case household formation increases, construction would also have to surge, particularly in economically attractive locations, where the boost of supply from vacant housing has limited potential. The underlying trend of optimal housing starts, estimated using the population-based trend of household formation and a constant percent of attrition of the housing stock, suggests that housing starts should increase from the current 1.15-1.25 million range to around 1.4 million (Figure 15).

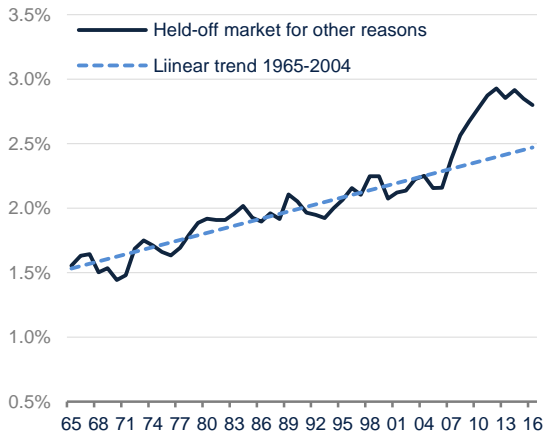
But why have housing starts been slow to pick up after the crisis? Why are they still below trend after eight years since the recession officially ended? And most importantly, why is this happening while nominal home prices are almost on par with their pre-crisis peak, real home prices are significantly elevated, and interest rates are historically very low?

Linear regression analysis was used to identify what explains the gap between the underlying trend of housing starts and the actual figures. The answers lie in the slow recovery, reduced leverage and excessive construction of homes during the pre-crisis period (Table 1 and Figure 16). We expect these variables to continue experiencing favorable trends, thus

⁷ Realtytrack (2016). U.S. Residential Vacancies Decrease 9 Percent in Q3 2016 But Bank-Owned Vacancies Up 67 Percent From a Year Ago. <https://goo.gl/uyWRTS>

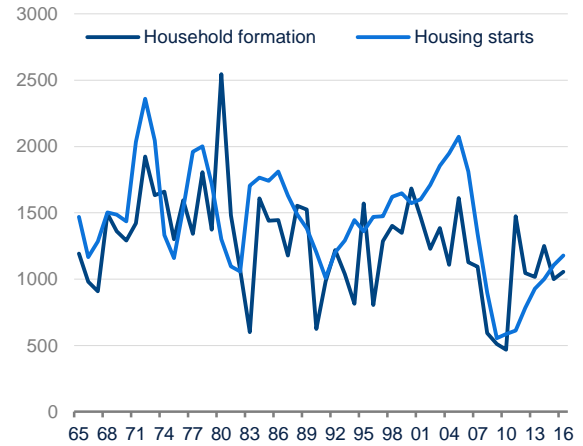
supporting new housing construction. Sustained growth in real GDP, incomes and home prices, amid higher leverage ratios and lower levels of vacant units, will lead to closing of the cyclical gap. Still, this is likely to take between two and three years.

Figure 13. Share units held off market for reasons other than occasional use in the total stock (%)



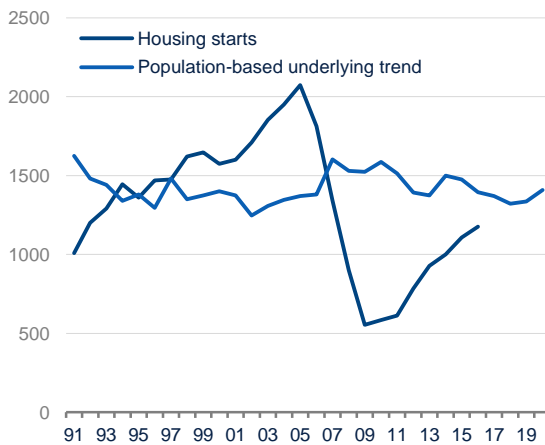
Source: BBVA Research and Census Bureau

Figure 14. Population growth, household formation and housing starts (thousands)



Source: BBVA Research and Census Bureau

Figure 15. Housing starts vs. population-based long-term underlying trend (thousands)



Source: BBVA Research and Census Bureau

Table 1. Model results.

Dependent variable – cyclical component

		Coef.	Std. err.	t	P> t	95% Conf. interval	
Real median income	D1.	0.0049	0.0009	5.6	0.0000	0.0031	0.0067
Real home price index	D1.	0.0181	0.0011	16.5	0.0000	0.0158	0.0203
Leverage	L1.	0.0460	0.0066	7.0	0.0000	0.0325	0.0596
	D1.	0.0856	0.0106	8.1	0.0000	0.0639	0.1073
Share of vacant in total units	L1.	-0.1013	0.0141	-7.2	0.0000	-0.1302	-0.0724
	D1.	0.2438	0.0446	5.5	0.0000	0.1524	0.3353
Real GDP growth		3.8129	0.6155	6.2	0.0000	2.5521	5.0737
Unemployment rate		-0.0284	0.0078	-3.6	0.0010	-0.0445	-0.0124
Constant		0.4706	0.1354	3.5	0.0020	0.1932	0.7481

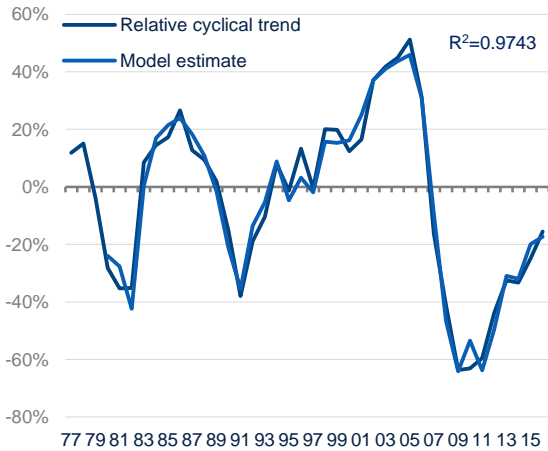
Source: BBVA Research

Building constraints: possible spoiler, but only in some MSAs

While at the national level housing starts are expected to perform well in the coming period, the situation varies at the metropolitan (MSA) level. Whereas building permits go hand-in-hand with population change, the relationship is not perfect and there is some variation (Figure 17) across MSAs. Housing shortages and fast home price appreciation occur

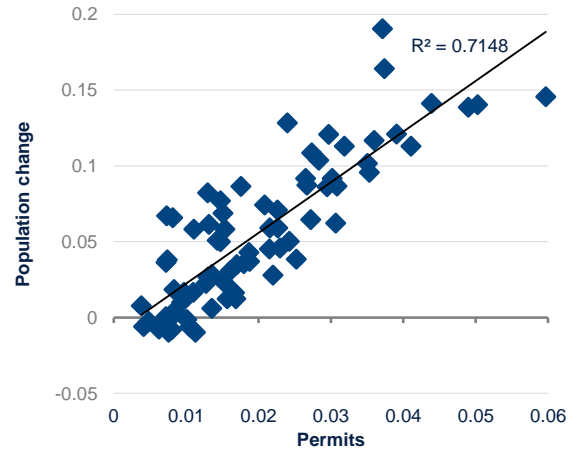
quite quickly when permits fail to track population change. A deeper analysis of the data shows that in addition to the positive relationship with population change, the level of issued building permits during 2011-2016 was inversely related with the levels of home-owner and rental vacancy rates by MSA, as well as residential land use restrictions measured by the Wharton Residential Land Use Reregulation Index. Land use regulation is and will likely remain a constraint to housing in a number of cities, especially in the East and West Coasts. However, at the aggregate level it should be offset by the more elastic supply in other adjacent and cheaper locations that attract commuters or in MSAs that successfully manage their economic transformation in the digital age. Therefore, while we expect solid average construction growth at the aggregate level, divergence between MSAs will remain elevated. This implies that large price differentials will continue to act as a balancing tool to keep all markets attractive in relative terms.

Figure 16. Model estimation
Cyclical component (% deviation from long-term underlying trend)



Source: BBVA Research

Figure 17. Building permits vs. population change 2011-2016 in 75 largest metropolitan areas (standardized by MSA population in 2010)



Source: BBVA Research and Census Bureau

Bottom line

Despite modest economic performance and low population growth, we expect ongoing improvement in residential construction. This increase in supply will help alleviate price pressures and improve housing affordability. Supply constraints in some MSAs should remain in place, leading to faster price appreciation relative to other markets.

Over the long-run, with population projected to continue growing, albeit at a slower rate, the fears of too-much housing seem overblown. However, at the regional and local level, markets could show significant imbalances depending on the ability to maintain solid economic fundamentals.

Downside risks come primarily from weaker macroeconomic conditions, potential overbuilding, a decline in leverage and borrowing constraints. However, these risks seem contained in an environment of healthy financial conditions, solid household balance sheets and an economy growing near trend. In addition, prudent credit standards limit the risks of overheating.

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